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INTRODUCTION.

This REVIEW treats generally the meteorological conditions of the United States and Canada for June, 1889, and is based upon reports of regular and voluntary observers of both countries.

On chart i the paths of the centres of ten areas of low pressure are shown; the average number traced for June during the last fifteen years being 9.2. This chart also exhibits the paths of the centres of five depressions traced over the north Atlantic Ocean; the limits of fog-belts west of the fortieth meridian, and the distribution of icebergs and field ice during the month. The areas of high and low pressure and north Atlantic storms are discussed under their respective headings.

Chart ii exhibits the distribution of mean atmospheric pressure and temperature for the month. The mean temperature was below the normal over a greater part of the interior and southern parts of the country; and at a large number of stations in the south Atlantic and east Gulf states, and in the Ohio and upper Mississippi valleys the lowest absolute temperature noted during the periods of observation was reported. At several stations, with short records, on the Pacific coast north of the fortieth parallel, the maximum temperature was higher than previously recorded for June.

Chart iii shows the distribution of precipitation for June, 1889. More than the average amount of precipitation for the month fell from New England and the lower lakes southward to the Gulf of Mexico, and thence westward to the Rio Grande Valley and the middle-eastern slope of the Rocky Mountains;

elsewhere the precipitation was deficient, and from Minnesota westward to the Pacific coast, and over the middle plateau region, averaged less than one-half the usual amount for June. The greatest excess occurred in the south Atlantic states, where the rainfall exceeded the June average by about 50 per cent.

The destructive floods at the beginning of the month in sections of the Middle States are discussed in this and the preceding issue of the REVIEW.

Under the heading "Drought" are given extracts from reports of observers in Dakota, Montana, and Idaho relative to the damaging drought that prevailed in those territories.

In the preparation of this REVIEW data from 2,226 stations have been used, classified as follows: 175 Signal Service stations; 124 monthly registers from United States Army post surgeons; 1,412 monthly registers from state weather service and voluntary observers; 22 Canadian stations; 164 stations through the Central Pacific Railway Company; 329 marine reports through the co-operation of the Hydrographic Office, United States Navy; marine reports through the "New York Herald Weather Service;" monthly weather reports from the local weather services of Alabama, Arkansas, Colorado, Illinois, Indiana, Iowa (Weather Crop Bulletin Service), Kansas, Kentucky, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New England, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, and Texas, and international simultaneous observations. Trustworthy newspaper extracts and special reports have also been used.

ATMOSPHERIC PRESSURE (expressed in inches and hundredths).

The distribution of mean atmospheric pressure for June, 1889, as determined from observations taken daily at 8 a. m. and 8 p. m. (75th meridian time), is shown on chart ii by isobars. The difference between the mean pressure for June, 1888, obtained from observations taken twice daily at the hours named and that determined from hourly observations varied at the stations named below is as follows: At Washington, D. C., New York, N. Y., and Boston, Mass., the mean of the 8 a. m. and 8 p. m. observations was higher by .005, .006, and .012, respectively, while at Saint Louis, Mo., Chicago, Ill., and San Francisco, Cal., the mean of the observations taken at these hours was .001, .002, and .014, respectively, lower than the true mean pressure.

The mean pressure for June, 1889, was highest on the North Carolina coast, where it rose to 30.11 at Hatteras. From the southern New England coast southwestward to the eastern Gulf coast and along the coast of Washington Territory the mean readings rose to or above 30.05. The mean pressure was lowest within an area extending from the lower valley of the Colorado River west of north over southeastern California, where it fell to 29.76 and 29.75 at Yuma, Ariz., and Keeler, Cal., respectively. From this region a trough of low mean pressure extended east of north over the plateau and Rocky Mountain

regions to the Canadian Northwest Territories within which the values varied from 29.80 to 29.90. The mean readings were below 29.90 in the lower Saint Lawrence valley, and fell below 29.95 north of the forty-fifth parallel except on the Pacific coast, and in the Rocky Mountain and plateau regions save over a portion of the middle eastern slope.

Compared with the pressure chart for May, 1889, an increase in pressure is shown, except in the Gulf states, the upper Missouri valley, over portions of the middle and southern plateau regions, and on the middle and south Pacific coast. The most marked increase in pressure has occurred on the North Carolina coast, where it amounts to .10, and the greatest decrease, about .10, in the San Joaquin Valley, California. In May, 1889, no well-defined area of high pressure was shown and the mean pressure was highest along the east Gulf coast and over Florida. In the current month the isobar of 30.10, traced on the North Carolina coast, and the isobar of 30.05, traced on the coast of Washington Territory, indicate the regions of highest pressure over the eastern and western portions of the country. From the Colorado Valley northward to the British Possessions north of Montana and Dakota there has been a slight decrease in pressure within the trough of low mean barometer which covered that region.